FY 1999 Technology Deployment in Environmental Management

Engineering Tomorrow's Solutions Today

Site Technology Coordination Group / Technology Deployment Center
U.S. Department of Energy, Idaho Operations Office

Very Early Time Electromagnetic System

Problem: *It is desirable to obtain the most accurate surface geophysical methodology possible to characterize and map the subsurface.*

Baseline Technology: *Ground penetrating radar (GPR) provides high-resolution views into the ground where the electrical conductivity of the ground is low, but lacks sufficient penetration when the conductivity is high. Time-domain electromagnetic (TDEM) systems are capable of deeper investigation into conductive earth but lack the desired resolution in the first 5 m of depth.*

Innovative Technology: *The Very Early Time Electromagnetic System has design enhancements over TDEM that allow for higher resolution at shallow depths (0 to ~5 m) for waste pit delineation and characterization and other buried object applications.*

Comparison: *VETEM fills the gap between GPR and TDEM by providing deeper penetration than GPR in conductive earth, and better resolution at shallow depth than conventional TDEM.*

Benefits: *The use of the VETEM system will lead to data integration with higher precision and greater confidence for the subsurface geophysical mapping at the INEEL's Radioactive Waste Management Complex (RWMC), Subsurface Disposal Area.*

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